

## PCT

## INTERNATIONAL SEARCH REPORT

(PCT Article 18 and Rules 43 and 44)

Applicant's or agent's file reference <b>E-1592/03</b>	<b>FOR FURTHER ACTION</b> see Notification of Transmittal of International Search Report (Form PCT/ISA/220) as well as, where applicable, item 5 below.	
International application No. <b>PCT/IT 03/00187</b>	International filing date (day/month/year) <b>28/03/2003</b>	(Earliest) Priority Date (day/month/year) <b>29/03/2002</b>
Applicant <b>CONSIGLIO NAZIONALE DELLE RICERCHE</b>		

This International Search Report has been prepared by this International Searching Authority and is transmitted to the applicant according to Article 18. A copy is being transmitted to the International Bureau.

This International Search Report consists of a total of 5 sheets.

☒ It is also accompanied by a copy of each prior art document cited in this report.

**1. Basis of the report**

- a. With regard to the **language**, the international search was carried out on the basis of the international application in the language in which it was filed, unless otherwise indicated under this item.

☐ the international search was carried out on the basis of a translation of the international application furnished to this Authority (Rule 23.1(b)).

- b. With regard to any **nucleotide and/or amino acid sequence** disclosed in the international application, the international search was carried out on the basis of the sequence listing:

☐ contained in the international application in written form.

☐ filed together with the international application in computer readable form.

☐ furnished subsequently to this Authority in written form.

☐ furnished subsequently to this Authority in computer readable form.

☐ the statement that the subsequently furnished written sequence listing does not go beyond the disclosure in the international application as filed has been furnished.

☐ the statement that the information recorded in computer readable form is identical to the written sequence listing has been furnished

2. ☐ **Certain claims were found unsearchable** (See Box I).

3. ☐ **Unity of invention is lacking** (see Box II).

4. With regard to the **title**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established by this Authority to read as follows:

5. With regard to the **abstract**,

☒ the text is approved as submitted by the applicant.

☐ the text has been established, according to Rule 38.2(b), by this Authority as it appears in Box III. The applicant may, within one month from the date of mailing of this international search report, submit comments to this Authority.

6. The figure of the **drawings** to be published with the abstract is Figure No.

☒ as suggested by the applicant.

☐ because the applicant failed to suggest a figure.

☐ because this figure better characterizes the invention.

1  
☐ None of the figures.

## INTERNATIONAL SEARCH REPORT

Internal	Application No
PC	03/00187

A. CLASSIFICATION OF SUBJECT MATTER  
IPC 7 H01L51/30 H01L51/20

According to International Patent Classification (IPC) or to both national classification and IPC

## B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)  
IPC 7 H01L

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)

EPO-Internal, INSPEC, PAJ

## C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	JU-SEUNG KIM ET AL: "White light emission from a single-layer electroluminescent device using exciplex formed between organic materials" KOREA-JAPAN JOINT FORUM 2000. ORGANIC MATERIALS FOR ELECTRONICS AND PHOTONICS, KYOTO, JAPAN, 4-6 OCT. 2000, vol. 370, pages 35-38, XP008021038 Molecular Crystals and Liquid Crystals, 2001, Gordon & Breach, Switzerland ISSN: 1058-725X the whole document  — -/-	1-4

☒ Further documents are listed in the continuation of box C.

☒ Patent family members are listed in annex.

## \* Special categories of cited documents:

- \*A\* document defining the general state of the art which is not considered to be of particular relevance
- \*E\* earlier document but published on or after the international filing date
- \*L\* document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)
- \*O\* document referring to an oral disclosure, use, exhibition or other means
- \*P\* document published prior to the international filing date but later than the priority date claimed

- \*T\* later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention
- \*X\* document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone
- \*Y\* document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art
- \*&\* document member of the same patent family

Date of the actual completion of the international search

22 August 2003

Date of mailing of the international search report

29/08/2003

Name and mailing address of the ISA

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Königstein, C

## INTERNATIONAL SEARCH REPORT

Internat Application No  
PC 03/00187

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	KALINOWSKI J ET AL: "THOMSON-LIKE ELECTRON-HOLE RECOMBINATION IN ORGANIC LIGHT-EMITTING DIODES" JAPANESE JOURNAL OF APPLIED PHYSICS, PUBLICATION OFFICE JAPANESE JOURNAL OF APPLIED PHYSICS. TOKYO, JP, vol. 40, no. 3B, PART 2, 15 March 2001 (2001-03-15), pages L282-L285, XP001078050 ISSN: 0021-4922 the whole document	1,2,5, 16,19, 23,24
A	GIRO G ET AL: "Exciplex formation in light emitting molecularly doped polymer diodes based on polycarbonate:TPD:PBD blends" ELECTRICAL, OPTICAL, AND MAGNETIC PROPERTIES OF ORGANIC SOLID-STATE MATERIALS V. SYMPOSIUM (MATERIALS RESEARCH SOCIETY PROCEEDINGS VOL.598), ELECTRICAL, OPTICAL, AND MAGNETIC PROPERTIES OF ORGANIC SOLID-STATE MATERIALS V. SYMPOSIUM, BOSTON, MA, USA, , pages BB11.3.1-5, XP008021030 2000, Warrendale, PA, USA, Mater. Res. Soc, USA ISBN: 1-55899-506-4 the whole document	1,5
A	FATTORI V ET AL: "Light-emitting devices with a photoluminescent quinquethiophene derivative as an emitting material" 2ND INTERNATIONAL CONFERENCE ON ELECTROLUMINESCENCE OF MOLECULAR MATERIALS AND RELATED PHENOMENA, SHEFFIELD, UK, 15-18 MAY 1999, vol. 111-112, pages 83-86, XP001164173 Synthetic Metals, 1 June 2000, Elsevier, Switzerland ISSN: 0379-6779 the whole document	1,23
P,X	KALINOWSKI J ET AL: "Quenching effects in organic electrophosphorescence" PHYSICAL REVIEW B (CONDENSED MATTER AND MATERIALS PHYSICS), 15 DEC. 2002, APS THROUGH AIP, USA, vol. 66, no. 23, pages 235321-1-15, XP001164175 ISSN: 0163-1829 the whole document	1-14,24, 25,27-33
A	US 2002/024293 A1 (MIYASHITA YOUSUKE ET AL) 28 February 2002 (2002-02-28) paragraph '0081! - paragraph '0095! -/--	1,8-10

## INTERNATIONAL SEARCH REPORT

Internat	Application No
PC	03/00187

## C.(Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WO 01 39234 A (UNIV PRINCETON) 31 May 2001 (2001-05-31) the whole document	1, 18, 19
A	EP 0 831 676 A (PHILIPS PATENTVERWALTUNG ;PHILIPS ELECTRONICS NV (NL)) 25 March 1998 (1998-03-25) the whole document	

# INTERNATIONAL SEARCH REPORT

Information on patent family members

Internat Application No  
PC 03/00187

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
US 2002024293	A1	28-02-2002	JP	2002117978 A	19-04-2002
WO 0139234	A	31-05-2001	US	6458475 B1	01-10-2002
			AU	1614501 A	04-06-2001
			WO	0139234 A2	31-05-2001
EP 0831676	A	25-03-1998	DE	19638770 A1	26-03-1998
			EP	0831676 A2	25-03-1998
			JP	10106748 A	24-04-1998
			US	5955836 A	21-09-1999